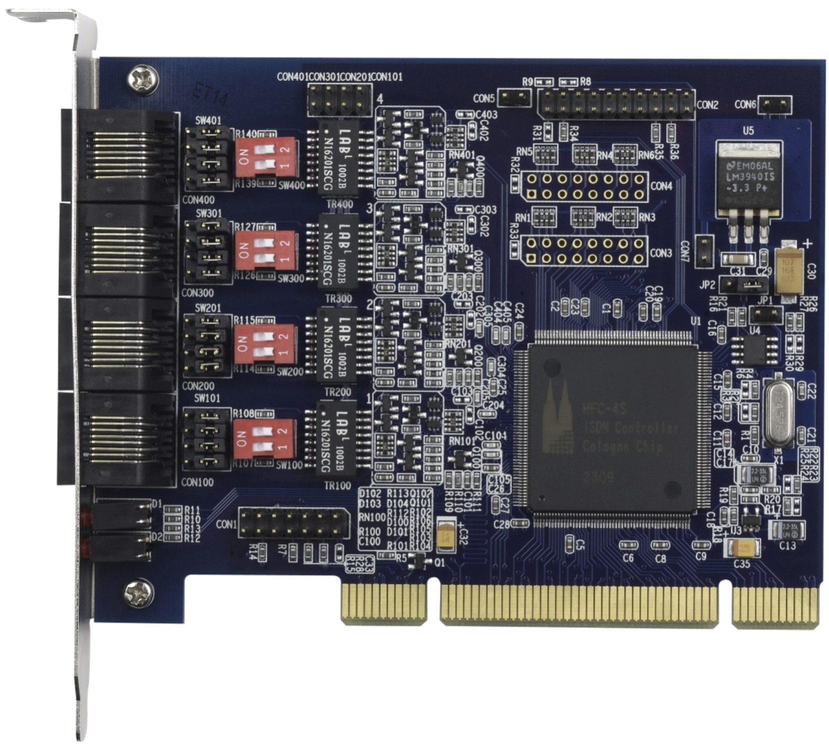


ATCOM® Digital Card AX-4S

Product Guide

Version: 1.0

The Installation of AX-4S with Elastix 1.6

Content

Contact ATCOM

The Introduction of ATCOM

Founded in 1998, ATCOM technology has been always endeavoring in the R&D and manufacturing of the internet communication terminals. The product line of ATCOM includes IP Phone, USB Phone, IP PBX, VoIP gateway and Asterisk Card.

Contact sales:

Address	District C, east of 2nd floor, #3, Crown industry buildings, Chegongmiao Industry area, Futian district, Shenzhen, China
Tel	+(86)755-23487618
Fax	+(86)755-23485319
E-mail	sales@atcomemail.com

Contact Technical Support:

Tel	+(86)755-23481119
E-mail	Support@atcomemail.com

Website address: http://www.atcom.cn/

ATCOM Wiki Website: http://www.openippbx.org/index.php?title=Main_Page

Download Center: http://www.atcom.cn/download.html

Chapter 1 the Introduction of AX-4S

Overview of the AX-4S

AX-4S Asterisk card is the telephony PCI card that support four ISDN PRI E1 ports. Using AX-4S digital PRI card, open source Asterisk PBX and stand alone PC, users can create their IP PBX telephony solution include all the sophisticated features of traditional PBX, and extend features such as voicemail in IP PBX.

Features

4 Basic Rate Interface ports (1.421) for TE and NT mode
Hardware DTMF detection
Conference Bridge
Point-to-point (TE/NT) and Point-to-Multipoint (TE/NT) Euro ISDN protocol stack
Suitable for 3.3 volts 5.0 volts 32 bit PCI 2.2 slots

Applications

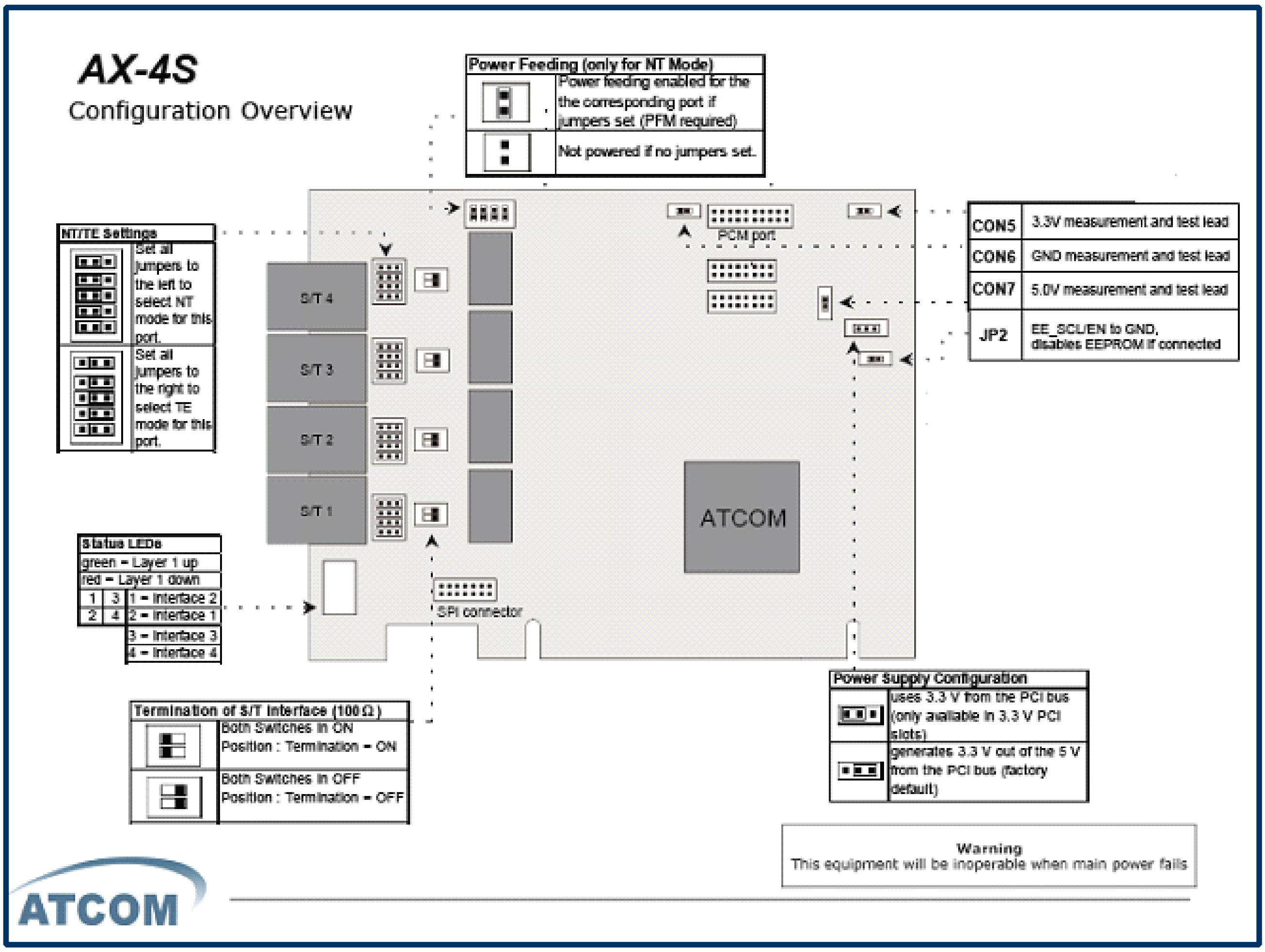
ISDN BRI IP PBX
ISDN least cost router
Voice over IP BRI termination gateways
IVR system
Traditional Calls/VoIP Calls Conference

Hardware requirement

1.6-Ghz Pentium IV
512 MB RAM
3.3V or 5V PCI 2.2 slot

PCI card dimension:

95mm (height) × 120mm (Length)



Jumper settings of AX-4S

Chapter 2 Software Installation

Test Environment:

Elastix 1.6
AX-4S

1. NT mode : set Jumper cap to the left ,set the switch to the left.
   TE mode : set Jumper cap to the right,set the switch to the right.
   Set the TE/NT mode of the four ports.
   After inserting the card into your PCI slot and boot your server, please use the "lspci" command to check the PCI bus compatibility.
   [root@elastix ~]# lspci
   The correct output will like the following:
   ==
   04:00.0 Ethernet controller: Broadcom Corporation NetXtreme BCM5751 Gigabit Ethernet PCI Express (rev 01)
   05:02.0 ISDN controller: Cologne Chip Designs GmbH ISDN network Controller [HFC-4S] (rev 01)
   05:07.0 VGA compatible controller: XGI Technology Inc. (eXtreme Graphics Innovation) Volari Z7/Z9/Z9s
   ==
   An Cologne Chip Designs GmbH ISDN network Controller will be found, if you can not see it, please poweroff your server and try another PCI slot, if it still does not help, you have to check the compatibility issue between the card and your PCI bus.

2. Install complier and update the rpms in your system:
   [root@elastix ~]# yum install gcc
   [root@elastix ~]# yum update

3. Download the mISDN and mISDNuser, then install them:
   [root@elastix ~]# wget http://www.misdn.org/downloads/releases/mISDN-1_1_9.1.tar.gz
   [root@elastix ~]# wget http://www.misdn.org/downloads/releases/mISDNuser-1_1_9.1.tar.gz
   [root@elastix ~]# tar mISDN-1_1_9.1
   [root@elastix ~]#cd mISDN-1_1_9.1
   [root@elastix mISDN-1_1_9.1]# make clean
   [root@elastix mISDN-1_1_9.1]# make install
   [root@elastix mISDN-1_1_9.1]# cd ..
   [root@elastix ~]# tar -xzvf mISDNuser-1_1_9.1.tar.gz
   [root@elastix ~]# cd mISDNuser-1_1_9.1
   [root@elastix mISDNuser-1_1_9.1]# make clean

[root@elastix mISDNuser-1_1_9.1]# make install

4. [root@elastix mISDNuser-1_1_9.1]# vi /etc/modprobe.d/blacklist

   add the following lines at the end:

   ==

   Blacklist hisax
   blacklist hisax_fcpcipnp
   blacklist hisax_isac
   blacklist crc_ccitt
   blacklist isdn
   blacklist slhc
   blacklist capi
   blacklist capifs
   blacklist kernelcapi
   blacklist kernel_capi
   blacklist avmfritz
   blacklist hfc4s8s_l1

   ==

   restart your machine before anything.

5. [root@elastix ~]# amportal stop

   ==

   [OK] found the following devices:
   card=1,0x4
   [ii] run "/usr/sbin/misdn-init config" to store this information to /etc/misdn-init.conf

   ==

   [root@elastix ~]# misdn-init scan

   ==

   [OK] found the following devices:
   card=1,0x4
   [ii] run "/usr/sbin/misdn-init config" to store this information to /etc/misdn-init.conf

   ==

   [root@elastix ~]# misdn-init config

   ==

   [OK] /etc/misdn-init.conf created. It's now safe to run "/usr/sbin/misdn-init start"
   [ii] make your ports (1-4) available in asterisk by editing "/etc/asterisk/misdn.conf"

   ==

   [root@elastix ~]# misdn-init start

   ==

```
------------------------------------------
  Loading module(s) for your misdn-cards:
------------------------------------------
/sbin/modprobe --ignore-install hfcmulti type=0x4 protocol=0x2,0x2,0x2,0x2 layermask=0xf,0xf,0xf,0xf poll=128 debug=0
/sbin/modprobe mISDN_dsp debug=0x0 options=0 poll=128 dtmfthreshold=100
==============================================================
```

Chapter 3 Software Configuration

1. Please configure the misdn-init.conf file:
   [root@elastix ~]# vi /etc/misdn-init.conf
   configure the NT/TE mode of the four ports, for example(I set por1and port2 as NT mode, port3 and port4 as TE mode):

```
========================================================================
card=1,0x4

#
# Port settings
#
# Syntax: <port_type>=<port_number>[,<port_number>...]
#
#      <port_type>      te_ptp              - TE-Mode, PTP
#                       te_ptmp             - TE-Mode, PTMP
#                       te_capi_ptp         - TE-Mode (capi), PTP
#                       te_capi_ptmp        - TE-Mode (capi), PTMP
#                       nt_ptp              - NT-Mode, PTP
#                       nt_ptmp             - NT-Mode, PTMP
#      <port_number>    port that should be considered
#
nt_ptmp=1,2
te_ptmp=3,4

#
# Port Options
#
# Syntax: option=<port_number>,<option>[,<option>...]
========================================================================
```

2. Please configure the extensions.conf file:
   [root@elastix ~]#vi /etc/asterisk/extensions.conf
   For example:

```
========================================================================
[test]
exten => 301,1,Answer()
exten => 301,2,Dial(misdn/1/100,20,tr)
exten => 301,3,Hangup()

exten => 100,1,Answer()
```

```
exten => 100,2,Playback(demo-instruct)
exten => 100,3,Hangup()

exten => 302,1,Answer()

exten => 302,2,Dial(misdn/2/101,20,tr)
exten => 302,3,Hangup()

exten => 101,1,Answer()
exten => 101,2,Playback(demo-instruct)
exten => 101,3,Hangup()

exten => 303,1,Answer()
exten => 303,2,Dial(misdn/3/102,20,tr)
exten => 303,3,Hangup()

exten => 102,1,Answer()
exten => 102,2,Playback(demo-instruct)
exten => 102,3,Hangup()

exten => 304,1,Answer()
exten => 304,2,Dial(misdn/4/103,20,tr)
exten => 304,3,Hangup()

exten => 103,1,Answer()
exten => 103,2,Playback(demo-instruct)
exten => 103,3,Hangup()
==============================================================
```

3. Please configure the sip.conf file, for example:

```
[root@elastix ~]# vi /etc/asterisk/sip.conf
==============================================================
[888]
type=friend
username=888
secret=888
context=test
host=dynamic
==============================================================
```

Chapter 4 Test Example

1. For example,we set port1,port2 as NT mode, port3,port4 as TE mode.and connect port1 and port4 together, port2 and port3 together with straight-through cable.

```
[root@elastix ~]# amportal start
[root@elastix ~]# asterisk –vvvvvvvvgrc
trixbox1*CLI> misdn show stacks
=====================================================================
BEGIN STACK_LIST:
   * Port 1 Type NT Prot. PMP L2Link DOWN L1Link:UP Blocked:0    Debug:0
   * Port 2 Type NT Prot. PMP L2Link DOWN L1Link:UP Blocked:0    Debug:0
   * Port 3 Type TE Prot. PMP L2Link DOWN L1Link:UP Blocked:0    Debug:0
   * Port 4 Type TE Prot. PMP L2Link DOWN L1Link:UP Blocked:0    Debug:0
=====================================================================
```

If you can't get the right information with the ',misdn show stacks' command, just reboot and run 'amportal stop' 'misdn-init start' 'amportal start' 'asterisk -vvvvvvvvvvgrc' again.

2. Register a sip telephone as 888 on the AX-4S. Then dial 301,302,303,304 in turn. You will hear the voice of "demo-instruct" and see:

```
=====================================================================
-- Executing [301@test:1] Answer("SIP/888-0837b5d0", "") in new stack
      -- Executing [301@test:2] Dial("SIP/888-0837b5d0", "misdn/1/100|20|tr") in new stack
P[ 1] channel with stid:0 for one second still in use!
      -- Called 1/100
P[ 4] channel with stid:0 for one second still in use!
      -- Executing [100@test:1] Answer("mISDN/7-u4", "") in new stack
      -- Executing [100@test:2] Playback("mISDN/7-u4", "demo-instruct") in new stack
      -- <mISDN/7-u4> Playing 'demo-instruct' (language 'en')
P[ 1] We already have a channel (1)
      -- mISDN/1-u5 is proceeding passing it to SIP/888-0837b5d0
-- mISDN/1-u5 answered SIP/888-0837b5d0
== Spawn extension (test, 301, 2) exited non-zero on 'SIP/888-0837b5d0'
   == Spawn extension (test, 100, 2) exited non-zero on 'mISDN/7-u4'
      -- Executing [302@test:1] Answer("SIP/888-0837b5d0", "") in new stack
      -- Executing [302@test:2] Dial("SIP/888-0837b5d0", "misdn/2/101|20|tr") in new stack
P[ 2] channel with stid:0 for one second still in use!
      -- Called 2/101
P[ 3] channel with stid:0 for one second still in use!
      -- Executing [101@test:1] Answer("mISDN/5-u7", "") in new stack
      -- Executing [101@test:2] Playback("mISDN/5-u7", "demo-instruct") in new stack
      -- <mISDN/5-u7> Playing 'demo-instruct' (language 'en')
```

```
P[ 2] We already have a channel (1)
        -- mISDN/3-u8 is proceeding passing it to SIP/888-0837b5d0
        -- mISDN/3-u8 answered SIP/888-0837b5d0
    == Spawn extension (test, 302, 2) exited non-zero on 'SIP/888-0837b5d0'
    == Spawn extension (test, 101, 2) exited non-zero on 'mISDN/5-u7'
-- Executing [303@test:1] Answer("SIP/888-0837b5d0", "") in new stack
        -- Executing [303@test:2] Dial("SIP/888-0837b5d0", "misdn/3/102|20|tr") in new stack
P[ 3] channel with stid:0 for one second still in use!
        -- Called 3/102
P[ 2] channel with stid:0 for one second still in use!
        -- Executing [102@test:1] Answer("mISDN/3-u10", "") in new stack
        -- Executing [102@test:2] Playback("mISDN/3-u10", "demo-instruct") in new stack
        -- <mISDN/3-u10> Playing 'demo-instruct' (language 'en')
        -- mISDN/5-u12 answered SIP/888-0837b5d0
== Spawn extension (test, 303, 2) exited non-zero on 'SIP/888-0837b5d0'
    == Spawn extension (test, 102, 2) exited non-zero on 'mISDN/3-u10'
        -- Executing [304@test:1] Answer("SIP/888-0837b5d0", "") in new stack
        -- Executing [304@test:2] Dial("SIP/888-0837b5d0", "misdn/4/103|20|tr") in new stack
P[ 4] channel with stid:0 for one second still in use!
        -- Called 4/103
P[ 1] channel with stid:0 for one second still in use!
        -- Executing [103@test:1] Answer("mISDN/1-u14", "") in new stack
        -- Executing [103@test:2] Playback("mISDN/1-u14", "demo-instruct") in new stack
        -- <mISDN/1-u14> Playing 'demo-instruct' (language 'en')
        -- mISDN/7-u16 answered SIP/888-0837b5d0
    == Spawn extension (test, 304, 2) exited non-zero on 'SIP/888-0837b5d0'
    == Spawn extension (test, 103, 2) exited non-zero on 'mISDN/1-u14'
=================================================================
```

Chapter 5 Reference

http://www.asteriskguru.com/
http://www.asterisk.org/downloads
http://www.openippbx.org/index.php?title=Main_Page
http://www.atcom.cn/
http://trixbox.org/wiki/chan-misdn